TITLE: SYSTEM AND METHOD FOR FORWARDING PACKETS
INVENTOR(S): Bruce LaVigne, Lewis Stephen Kootstra, Mark Gooch
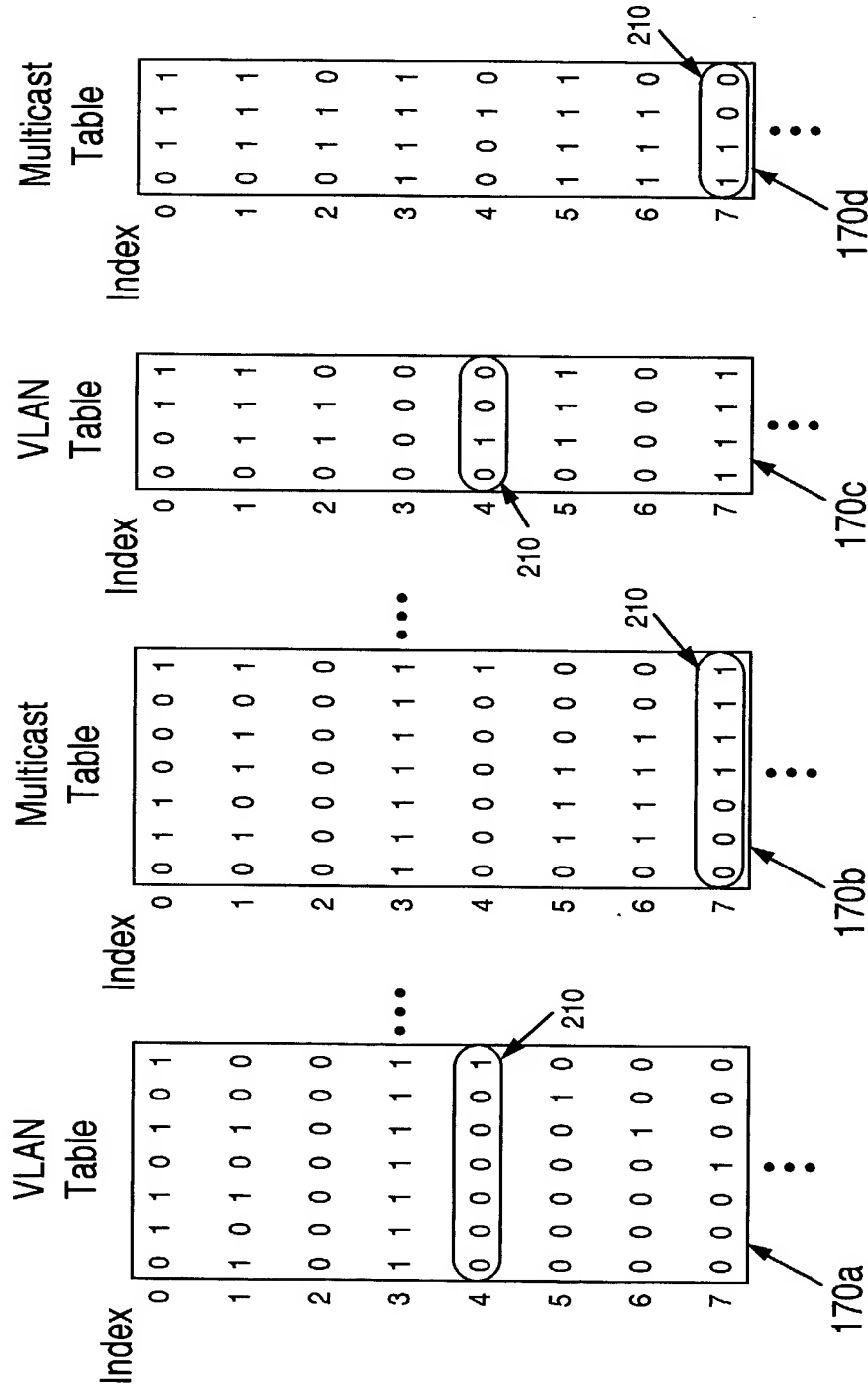Attorney Docket #: HP-100202409-1

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Fig. 1

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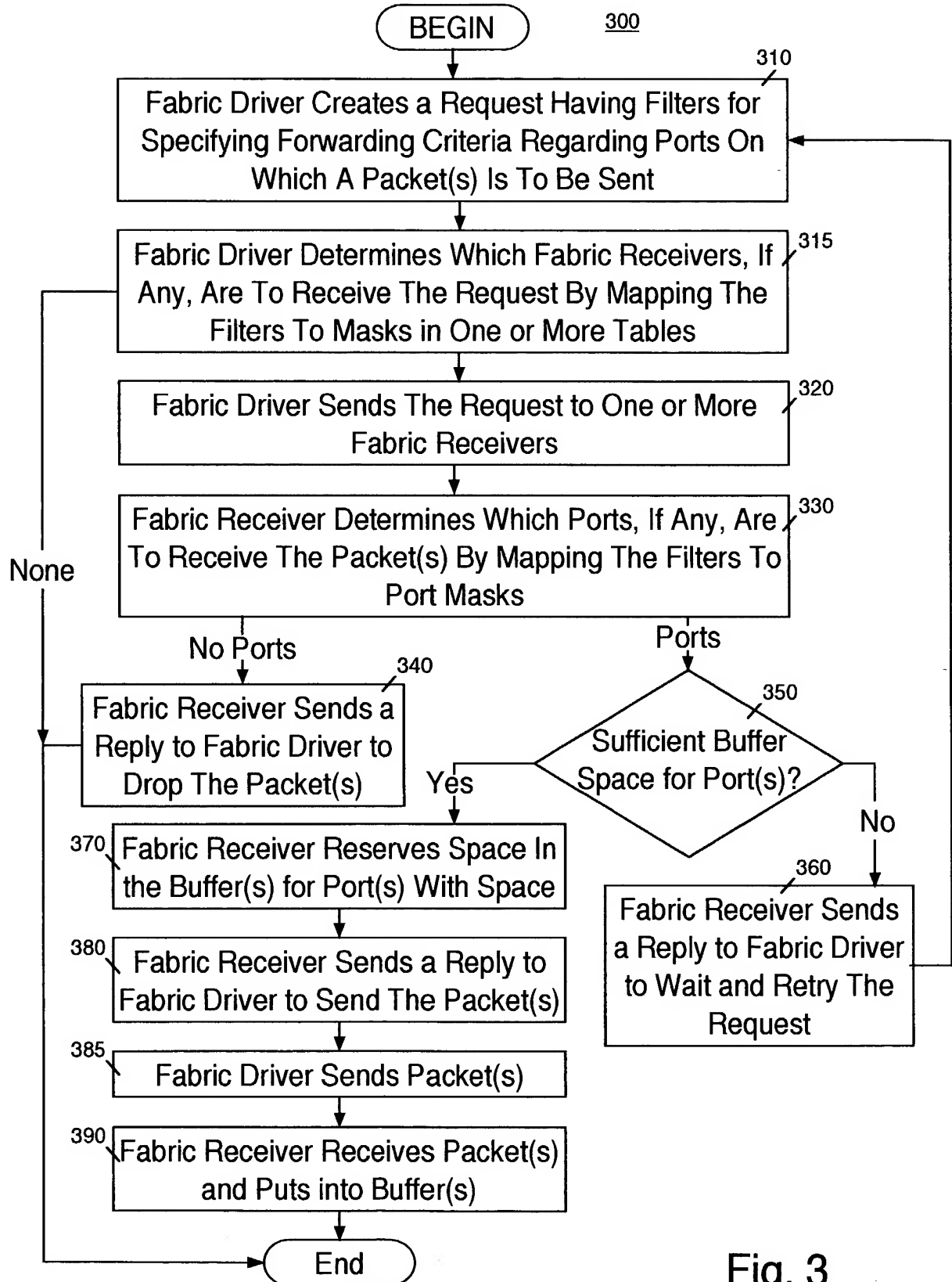Attorney Docket #: HP-100202409-1

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Fig. 2

(BEGIN)   <u>300</u>

310
Fabric Driver Creates a Request Having Filters for Specifying Forwarding Criteria Regarding Ports On Which A Packet(s) Is To Be Sent

315
Fabric Driver Determines Which Fabric Receivers, If Any, Are To Receive The Request By Mapping The Filters To Masks in One or More Tables

320
Fabric Driver Sends The Request to One or More Fabric Receivers

330
Fabric Receiver Determines Which Ports, If Any, Are To Receive The Packet(s) By Mapping The Filters To Port Masks

None

No Ports

Ports

340
Fabric Receiver Sends a Reply to Fabric Driver to Drop The Packet(s)

350
Sufficient Buffer Space for Port(s)?

Yes

No

370
Fabric Receiver Reserves Space In the Buffer(s) for Port(s) With Space

360
Fabric Receiver Sends a Reply to Fabric Driver to Wait and Retry The Request

380
Fabric Receiver Sends a Reply to Fabric Driver to Send The Packet(s)

385
Fabric Driver Sends Packet(s)

390
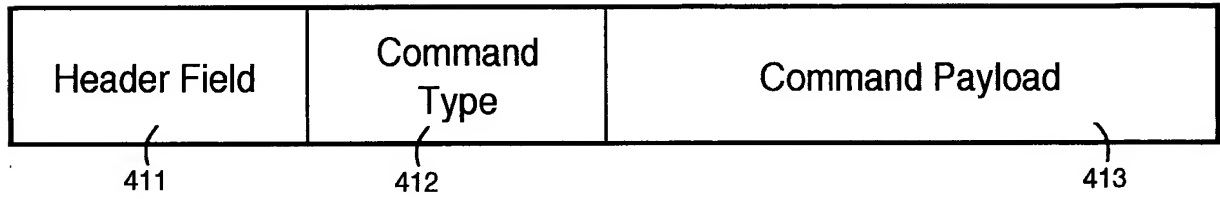Fabric Receiver Receives Packet(s) and Puts into Buffer(s)

(End)

Fig. 3

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Header Field	Command Type	Command Payload
411	412	413

Fig. 4A

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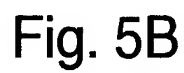Attorney Docket #: HP-100202409-1

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420

Command	Value
Buffer Request A	0x0
Buffer Request B	0x1
Buffer Reply	0x2
Send	0x8
Sendm	0x9
Credit	0xC
Sync	0xF

Fig. 4B

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150

0x0	X	X	X	logical_port	X

514

Fig. 5A

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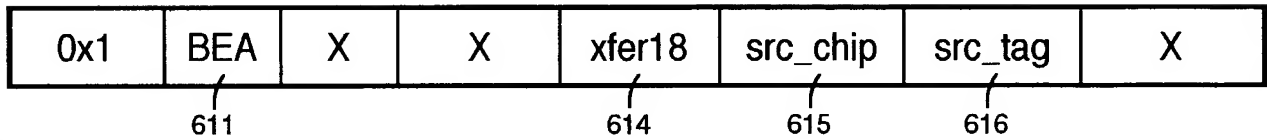Attorney Docket #: HP-100202409-1

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150

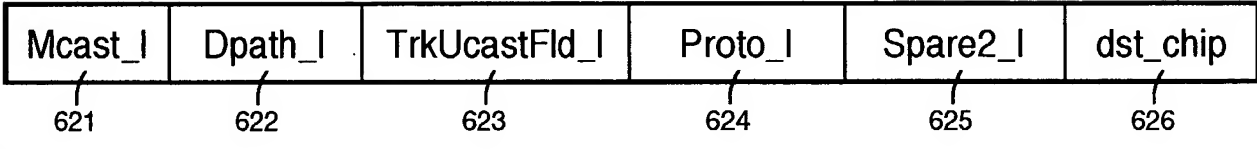| Vlan_I	SrcPort_I	Mesh_I	TrkBal_I	Spare1_I	dst_chip
521	522	523	524	525	526

Fig. 5B

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150

0x1	BEA	X	X	xfer18	src_chip	src_tag	X

611 614 615 616

Fig. 6A

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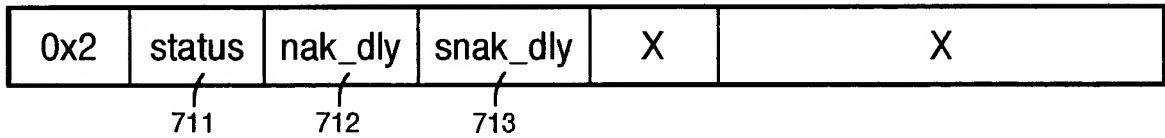Attorney Docket #: HP-100202409-1

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150

Mcast_l	Dpath_l	TrkUcastFld_l	Proto_l	Spare2_l	dst_chip
621	622	623	624	625	626

Fig. 6B

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170

0x2	status	nak_dly	snak_dly	X	X
	711	712	713		

Fig. 7A

170

res #	filtered	X	src_chip	src_tag	dst_chip
721	722		724	725	726

Fig. 7B

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750

Status	Value	Meaning
NACK	2'b00	No buffer was reserved. Another buffer request should be retired after waiting the period indicated by the nak_dly field: 00 ==> no delay 01 ==> Unit_Delay 10 ==> 2*Unit_Delay 11 ==> 4*Unit_Delay Each requester maintains its own definition of what a Unit_Delay is. At a minimum, the following Unit_Delay values should be available: -0.5uS (64 system clocks) -1.0uS (128 system clocks) -2.0uS (256 system clocks) -4.0uS (512 system clocks) Note that two_dly fields are supplied. The nak_dly field should be used for situations that are NOT speculative. The snak_dly field should be used for speculative situations. Note that a request can transition from speculative to non-speculative (not head-of-line to head-of-line) while the reply is in flight. These fields should be ignored if the reply is not NACK.
DROP	2'b01	No buffer was reserved, the packet should be dropped.
PARTIAL ACK	2'b10	A buffer was reserved and the packet should be forwarded. Some of the requested output ports will discard the packet due to resource limitations. This response may only occur if the request had its BEA (best effort acceptable) bit set.
FULL ACK	2'b11	A buffer was reserved and the packet should be forwarded. All requested output ports will accept the packet.

Fig. 7C

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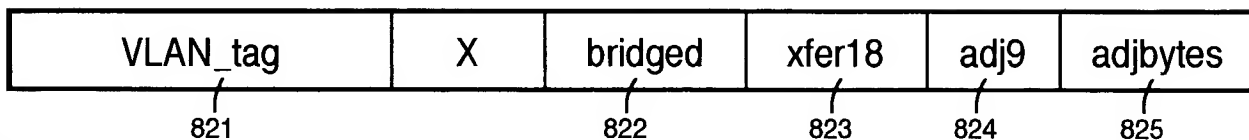Attorney Docket #: HP-100202409-1

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800

0x8	hdr_type	X	X	X	X	X

811

Fig. 8A

800

VLAN_tag	X	bridged	xfer18	adj9	adjbytes
821		822	823	824	825

Fig. 8B

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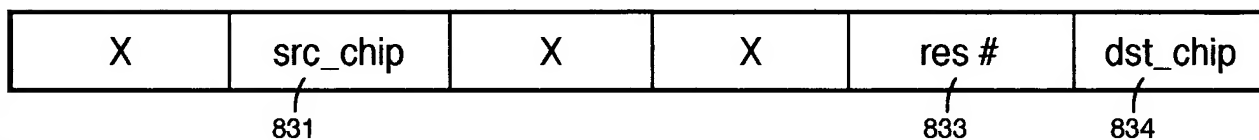Attorney Docket #: HP-100202409-1

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800

X	src_chip	X	X	res #	dst_chip
	831			833	834

Fig. 8C

900

Type	Value	Meaning
Normal	2'b00	Normal Header, data immediately follows the send command.
Extended	2'b01	Extended Header #1, 3 144 bit words follow the header, then data begins
Reserved	2'b1X	Reserved for future use.

Fig. 9